



# SEQUENCE LISTING

<110> Cano, Carlos Antonio Durante  
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<120> Expression System of Heterologous Antigens as Fusion Proteins

<130> LEXSA P-13DIV2

<140> 09/612,925

<141> 2000-07-10

<150> US 08/930,917

<151> 1997-09-16

<150> PCT/CU97/00001

<151> 1997-01-17

<160> 29

<170> PatentIn version 3.2

<210> 1

<211> 1797

<212> DNA

<213> Neisseria meningitidis (group B)

<400> 1

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ccgggcaaac tgctgattat cggcggcggc attatcagcc tcgagatggg tacggtttac	960
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<210> 2  
 <211> 47  
 <212> PRT  
 <213> Neisseria meningitidis (group B)

<400> 2

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Gly	Gly	His	Glu	Asn	Val	Asp	Ile	Ile	Ala	Val	Glu	Val	Asn	Val	Gly
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Asp Thr Ile Ala Val Asp Asp Thr Leu Ile Thr Leu Asp Leu Glu  
 35 40 45

<210> 3  
 <211> 146  
 <212> DNA  
 <213> Neisseria meningitidis (group B)

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 cgaaaaatga gatattatcg cggttgaagt aaacgtgggc gacactattg ctgtggacga 120  
 taccctgatt actttggatc tagaaa 146

<210> 4  
 <211> 18  
 <212> PRT  
 <213> Neisseria meningitidis (group B)

<400> 4

Val Asn Val Gly Asp Thr Ile Ala Val Asp Asp Thr Leu Ile Thr Leu  
 1 5 10 15

Asp Leu

<210> 5  
 <211> 18  
 <212> PRT  
 <213> Neisseria meningitidis (group B)

<400> 5

Val Glu Val Gly Ser Lys Ile Tyr Val Asp Asp Gly Leu Ile Ser Leu  
 1 5 10 15

Gln Val

<210> 6  
 <211> 32  
 <212> PRT  
 <213> Neisseria meningitidis (group B)

<400> 6

Leu Val Glu Leu Lys Val Pro Asp Ile Gly Gly His Glu Asn Val Asp  
1 5 10 15

Ile Ile Ala Val Glu Val Asn Val Gly Asp Thr Ile Ala Val Asp Asp  
20 25 30

<210> 7  
<211> 32  
<212> PRT  
<213> Neisseria meningitidis (group B)

<400> 7

Leu Arg Glu Val Gln Val Pro Asp Arg Lys Leu His Lys Gly Val Gln  
1 5 10 15

Leu Leu Ala Gly Glu Leu Gly Ile Gly Glu Ala Leu Gln Val Asp Asp  
20 25 30

<210> 8  
<211> 162  
<212> PRT  
<213> Neisseria meningitidis (group B)

<400> 8

Met Val Asp Lys Arg Met Ala Leu Val Glu Leu Lys Val Pro Asp Ile  
1 5 10 15

Gly Gly His Glu Asn Val Asp Ile Ile Ala Val Glu Val Asn Val Gly  
20 25 30

Asp Thr Ile Ala Val Asp Asp Thr Leu Ile Thr Leu Asp Leu Asp Ser  
35 40 45

Arg Gly Ile Arg Ile Gly Pro Gly Arg Ala Ile Leu Ala Thr Ala Gly  
50 55 60

Gly Gly Ala Arg Gln Ser Thr Pro Ile Gly Leu Gly Gly Ala Leu Tyr  
65 70 75 80

Thr Thr Ala Gly Gly Gly Ala Arg Lys Ser Ile Thr Lys Gly Pro Gly  
85 90 95

Arg Val Ile Tyr Ala Thr Ala Gly Gly Gly Ala Arg Lys Arg Ile His  
 100 105 110

Ile Gly Pro Gly Arg Ala Phe Tyr Thr Thr Ala Gly Gly Gly Ala Arg  
 115 120 125

Lys Arg Ile Thr Met Gly Pro Gly Arg Val Tyr Tyr Thr Thr Ala Gly  
 130 135 140

Gly Gly Ala Ser Ile Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val  
 145 150 155 160

Thr Ile

<210> 9  
 <211> 489  
 <212> DNA  
 <213> Neisseria meningitidis (group B)

<400> 9  
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 ctgattactt tggatctaga ctcgagaggc attcgtatcg gcccaggtcg cgcaatttta 180  
 gcaacagctg gcggtggcgc acgtcaatct acccctattg gtttaggtca ggctctgtat 240  
 acgactgccg gcggtgggtgc gcgcaaaagt atcaccaagg gtccaggccg cgtcatttac 300  
 gccaccgcgg gcggcggtgc ccgtaagcgt atccacattg gcccaggccg tgcattctat 360  
 actacagcag gtggtggcgc acgtaaagcgc atcactatgg gtcctgggtcg cgtctattac 420  
 acgaccgctg gcggcggtgc tagcattcgc atccaacgcg gccctgggtcg tgcatttgtg 480  
 accatatga 489

<210> 10  
 <211> 47  
 <212> PRT  
 <213> Neisseria meningitidis (group B)

<400> 10

Met Leu Asp Lys Arg Met Ala Leu Val Glu Leu Lys Val Pro Asp Ile  
 1 5 10 15

Gly Gly His Glu Asn Val Asp Ile Ile Ala Val Glu Val Asn Val Gly  
 20 25 30

Asp Thr Ile Ala Val Asp Asp Thr Leu Ile Thr Leu Glu Thr Asp  
 35 40 45

<210> 11  
 <211> 29  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Primer 5' No. 1573

<400> 11  
 ttccatggta gataaaagaa tggctttag 29

<210> 12  
 <211> 29  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Primer 3' No. 1575

<400> 12  
 tttctagatc caaagtaatc agggatatcg 29

<210> 13  
 <211> 26  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Primer 3' No. 2192

<400> 13  
 ggcggttctg ccgattaagg atccga 26

<210> 14  
 <211> 16  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Oligonucleotide used to introduce restriction sites XbaI, EcoV,  
 and BamHI in the 3' end of the stabilizer fragment of SEQ. ID.  
 NO. 13

<400> 14  
ctagatttga tatcag 16

<210> 15  
<211> 16  
<212> DNA  
<213> Artificial

<220>  
<223> Oligonucleotide used to introduce restriction sites XbaI, EcoV,  
and BamHI in the 3' end of the stabilizer fragment of SEQ. ID.  
NO. 13

<400> 15  
gatcctgata tcaaat 16

<210> 16  
<211> 15  
<212> PRT  
<213> Human immunodeficiency virus type 1

<400> 16  
  
Ser Arg Gly Ile Arg Ile Gly Pro Gly Arg Ala Ile Leu Ala Thr  
1 5 10 15

<210> 17  
<211> 15  
<212> PRT  
<213> Human immunodeficiency virus type 1

<400> 17  
  
Arg Gln Ser Thr Pro Ile Gly Leu Gly Gln Ala Leu Tyr Thr Thr  
1 5 10 15

<210> 18  
<211> 15  
<212> PRT  
<213> Human immunodeficiency virus type 1

<400> 18  
  
Arg Lys Ser Ile Thr Lys Gly Pro Gly Arg Val Ile Tyr Ala Thr  
1 5 10 15

<210> 19  
<211> 15  
<212> PRT  
<213> Human immunodeficiency virus type 1

<400> 19

Arg Lys Arg Ile His Ile Gly Pro Gly Arg Ala Phe Tyr Thr Thr  
1 5 10 15

<210> 20

<211> 15

<212> PRT

<213> Human immunodeficiency virus type 1

<400> 20

Arg Lys Arg Ile Thr Met Gly Pro Gly Arg Val Tyr Tyr Thr Thr  
1 5 10 15

<210> 21

<211> 15

<212> PRT

<213> Neisseria meningitidis (group B)

<400> 21

Ser Ile Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val Thr Ile  
1 5 10 15

<210> 22

<211> 15

<212> PRT

<213> Human immunodeficiency virus type 1

<400> 22

Thr Ser Ile Thr Ile Gly Pro Gly Gln Val Phe Tyr Arg Thr Gly  
1 5 10 15

<210> 23

<211> 15

<212> PRT

<213> Human immunodeficiency virus type 1

<400> 23

Arg Gln Arg Thr Ser Ile Gly Gln Gly Gln Ala Leu Tyr Thr Thr  
1 5 10 15

<210> 24

<211> 5

<212> PRT

<213> Artificial



<220>

<223> Spacer peptide that divides the various V3 epitopes in the MEPS  
TAB3, TAB4, TAB9, and TAB13

<400> 24

Ala Gly Gly Gly Ala  
1 5

<210> 25

<211> 141

<212> PRT

<213> Artificial

<220>

<223> Multiepitopic polypeptides that includes several copies of the  
central part of the variable region 3 of the gp120 protein of the  
HIV-1

<400> 25

Met Ala Pro Thr Ser Ser Ser Thr Ala Gln Thr Gln Leu Gln Leu Glu  
1 5 10 15

His Leu Leu Leu Asp Leu Gln Ile Phe Leu Ser Arg Gly Ile Arg Ile  
20 25 30

Gly Pro Gly Arg Ala Ile Leu Ala Thr Ala Gly Gly Gly Ala Arg Gln  
35 40 45

Ser Thr Pro Ile Gly Leu Gly Gly Ala Leu Tyr Thr Thr Ala Gly Gly  
50 55 60

Gly Ala Arg Lys Ser Ile Thr Lys Gly Pro Gly Arg Val Ile Tyr Ala  
65 70 75 80

Thr Ala Gly Gly Gly Ala Arg Lys Arg Ile His Ile Gly Pro Gly Arg  
85 90 95

Ala Phe Tyr Thr Thr Ala Gly Gly Gly Ala Arg Lys Arg Ile Thr Met  
100 105 110

Gly Pro Gly Arg Val Tyr Tyr Thr Thr Ala Gly Gly Gly Ala Ser Ile  
115 120 125

Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val Thr Ile  
130 135 140

<210> 26  
<211> 162  
<212> PRT  
<213> Artificial

<220>  
<223> Multiepitopic polypeptides that includes several copies of the  
central part of the variable region 3 of the gp120 protein of the  
HIV-1

<400> 26

Met Val Asp Lys Arg Met Ala Leu Val Glu Leu Lys Val Pro Asp Ile  
1 5 10 15

Gly Gly His Glu Asn Val Asp Ile Ile Ala Val Glu Val Asn Val Gly  
20 25 30

Asp Thr Ile Ala Val Asp Asp Thr Leu Ile Thr Leu Asp Leu Asp Ser  
35 40 45

Arg Gly Ile Arg Ile Gly Pro Gly Arg Ala Ile Leu Ala Thr Ala Gly  
50 55 60

Gly Gly Ala Arg Gln Ser Thr Pro Ile Gly Leu Gly Gly Ala Leu Tyr  
65 70 75 80

Thr Thr Ala Gly Gly Gly Ala Arg Lys Ser Ile Thr Lys Gly Pro Gly  
85 90 95

Arg Val Ile Tyr Ala Thr Ala Gly Gly Gly Ala Arg Lys Arg Ile His  
100 105 110

Ile Gly Pro Gly Arg Ala Phe Tyr Thr Thr Ala Gly Gly Gly Ala Arg  
115 120 125

Lys Arg Ile Thr Met Gly Pro Gly Arg Val Tyr Tyr Thr Thr Ala Gly  
130 135 140

Gly Gly Ala Ser Ile Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val  
145 150 155 160

Thr Ile

<210> 27  
<211> 202  
<212> PRT  
<213> Artificial

<220>  
<223> Multiepitopic polypeptides that include several copies of the  
central part of the variable region 3 of the gp120 protein of the  
HIV-1

<400> 27

Met Val Asp Lys Arg Met Ala Leu Val Glu Leu Lys Val Pro Asp Ile  
1 5 10 15

Gly Gly His Glu Asn Val Asp Ile Ile Ala Val Glu Val Asn Val Gly  
20 25 30

Asp Thr Ile Ala Val Asp Asp Thr Leu Ile Thr Leu Asp Leu Asp Ser  
35 40 45

Arg Gly Ile Arg Ile Gly Pro Gly Arg Ala Ile Leu Ala Thr Ala Gly  
50 55 60

Gly Gly Ala Arg Gln Ser Thr Pro Ile Gly Leu Gly Gln Ala Leu Tyr  
65 70 75 80

Thr Thr Ala Gly Gly Gly Ala Arg Lys Ser Ile Thr Lys Gly Pro Gly  
85 90 95

Arg Val Ile Tyr Ala Thr Ala Gly Gly Gly Ala Arg Lys Arg Ile His  
100 105 110

Ile Gly Pro Gly Arg Ala Phe Tyr Thr Thr Ala Gly Gly Gly Ala Arg  
115 120 125

Lys Arg Ile Thr Met Gly Pro Gly Arg Val Tyr Tyr Thr Thr Ala Gly  
130 135 140

Gly Gly Ala Arg Gln Arg Thr Ser Ile Gly Gln Gly Gln Ala Leu Tyr  
145 150 155 160

Thr Thr Ala Gly Gly Gly Ala Thr Ser Ile Thr Ile Gly Pro Gly Gln  
165 170 175

Val Phe Tyr Arg Thr Gly Ala Gly Gly Gly Ala Ser Ile Arg Ile Gln  
180 185 190

Arg Gly Pro Gly Arg Ala Phe Val Thr Ile  
195 200

<210> 28  
<211> 368  
<212> DNA  
<213> Artificial

<220>  
<223> Synthetic fragment that codifies for MEP TAB9. Restriction sites  
XbaI and BamHI are introduced.

<400> 28  
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cggtgcccgt aagcgtatcc acattggccc aggccgtgca ttctatacta cagcaggtgg 240  
tggcgcacgt aaacgcatca ctatgggtcc tggtcgcgctc tattacacga ccgctggcgg 300  
cggtgctagc attcgcatcc aacgcggccc tggtcgtgca tttgtgacca tatgataacg 360  
cgggatcc 368

<210> 29  
<211> 5  
<212> PRT  
<213> Neisseria meningitidis (group B)

<400> 29

Met Leu Asp Lys Arg  
1 5